REMARKS

This application is a continuation of application serial number which issued as U.S. patent 6,334,045, and has the same specification as applicants' application. serial number 08/394,234 filed 2/22/95 filed February 22, 1995.

Applicants is attaching a copy of PTO forms 892 and 1449 of record in the parent application, and requests the examiner to consider and cite each of those references in this case. Copies should be available in the file history of the parent application; applicant will submit an additional copy upon request.

Applicant is filing a proposed substitute specification providing grammatical and wording corrections in the original 1995 specification and to add to the specification a paraphrase of the originally filed claims. The undersigned has taken care to ensure that these changes add no new matter, but requests the examiner's assistance and review to confirm that no new matter has been added. Please see the mark-on copy of the substitute specification for an indication of each and every change that is proposed.

Applicant directs the examiner's attention to his co-pending application serial number 10/052,344 filed January 23, 2002 and to the prior art cited therein. Applicant also requests the examiner to consider the present claims from the standpoint of obviousness-type double patenting *vis a vis* that co-pending case and the various other cases from which priority is claimed.

Applicants await an early action on the merits. If the Examiner finds this case is not now in condition for allowance and believes that an interview prior to first action would be helpful in focussing and/or resolving issues, applicants request the Examiner to

contact their representative at the telephone number listed below to arrange a telephonic or personal interview.

Respectfully submitted,

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

GREEN et al. | Atty. Ref.: 850-19

Serial No. 10/016,119 | Group:

Filed: 12/17/2001 | Examiner:

For: SATELLITE BROADCAST RECEIVING AND DISTRIBUTION SYSTEM

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November 8, 2002

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

SUBSTITUTE SPECIFICATION INCLUDING CLAIMS AND ABSTRACT (MARKED ON COPY)

TITLE OF THE INVENTION

SATELLITE BROADCAST RECEIVING AND DISTRIBUTION SYSTEM

BACKGROUND OF THE INVENTION

[0001] This continuing application claims priority under 35 USC Section 120 from each of the following prior applications:

application Serial No. 09/621,464, now U.S. Patent No. 6,334,045;

application Serial No. 09/001,484, now U.S. Patent No. 6,122,482;

application Serial No. 08/838,677, filed April 9, 1997, now U.S. Patent No. 5,805,975;

application Serial No. 08/394,234, filed February 22, 1995, now abandoned.

1. Field of the Invention

[0002] The present invention relates generally to a satellite broadcasting receiving and distribution system, and more particularly to a broadcasting receiving and distribution system that will allow for the transmission of vertical and horizontal (or left-hand circular and right-hand circular) polarization signals ~~to be transmitted~~ simultaneously via a single coaxial cable.

2. Description of the Prior Art

[0003] Satellite broadcasting has become very popular throughout the United States. Conventionally, broadcast signals are transmitted through an artificial satellite at very high frequencies. These frequencies are generally amplified and are processed by a ~~particular device~~ satellite receiving arrangement after being received by an antenna or antennas, and prior to application to a conventional home television set or the like.

[0004] The ~~device~~ satellite receiving arrangement is generally composed of an outdoor unit generally associated with the antenna and an indoor unit generally

associated with the television set or the like. The outdoor and indoor ~~and both~~ units are coupled via a coaxial cable.

~~A problem associated with these types of systems is that they are designed to accept signals through a line of sight. Accordingly, if the satellite is not visual from a building, then the signal cannot be transmitted. Thus, these systems are rendered useless for high-rises, hospitals, school, and the like. These systems are limited in usage, and as such, can only be utilized in residential homes.~~

[0005] As an example, US Patent No. 5,301,352 issued to Nakagawa et al. discloses a satellite broadcast receiving system. The system of Nakagawa et al. includes a plurality of antennas which, respectively, include a plurality of output terminals. A change-over divider is connected to the plurality of antennas and ~~have~~ has a plurality of output terminals. A plurality of receivers are attached to the change-over divider for selecting one of the antennas. Though this system does achieve one of its objects by providing for a simplified satellite system, it does, however, suffer a major short-coming. ~~by not providing a means of receiving satellite broadcasting for individuals who are not in direct line of sight to the antennas~~ This system is silent as to ~~the~~ any means of simultaneously transmitting vertical and horizontal polarized signals via a single coaxial cable.

[0006] US Patent No. 5,206,954, issued to Inoue et al. discloses yet another satellite system that includes an outdoor unit that is connected to a channel selector. In this embodiment, the satellite signal receiving apparatus receives vertically and horizontally polarized radiation signals at the ~~side~~ site of a receiving antenna. The signals are then transmitted, selectively to provide for either one of the vertically or horizontally polarized signals to be transmitted. This design and configuration provides for one coaxial cable to be utilized, but does not provide for the vertical and horizontal signals to be transmitted simultaneously, but rather, selectively.

[0007] None of these previous efforts, however, provide the benefits intended with the present invention. Additionally, prior techniques do not suggest the present inventive combination of component elements as disclosed and claimed

herein. The present invention achieves its intended purposes, objectives and advantages over the prior art device through a new, useful and unobvious combination of component elements, which is simple to use, with the utilization of a minimum number of functioning parts , at a reasonable cost to manufacture, assemble, test and by employing only readily available material.

SUMMARY OF THE INVENTION

[0008] The illustrative embodiment of the present invention provides a satellite broadcast receiving and distribution system that will permit for the transmission of vertical and horizontal (or left-hand circular and right-hand circular) polarization signals simultaneously via a single coaxial cable. The system ~~of the present invention~~ will accommodate two different polarity commands from two or more different sources at the same time. This exemplary satellite broadcast receiving and distribution system ~~of the present invention~~ will provide for the signals received from the satellite to be converted to frequencies which the ~~present day~~line amplifiers can transport. This will permit ~~for~~ the signals to travel via existing wiring in buildings, high-rises, hospitals, and the like so that satellite broadcasting can be viewed by numerous individuals by way of a single satellite antenna.

[0009] The exemplary satellite broadcast system consists of a satellite antenna which receives the polarized signals. These polarized signals are transmitted to a head-in processor and are converted to different frequencies ~~and polarities~~ in order to render the different signals to be transmitted simultaneously. Hence, the head-in processor will permit for the transmission of signals of two different frequencies and polarities to be transmitted simultaneously, and will also accommodate two different polarity commands from two or more different ~~sources~~ television receivers at the same time via a single cable. This cable is coupled to a head-out processor. These signals, once in the head-out processor, will be converted to frequencies ~~and polarities~~ that are required for the source (i.e.

television). Once converted, the signals are transmitted to a satellite receiver. This satellite receiver is coupled to the source.

[0010] Accordingly, it is the object of the present invention to provide for a satellite broadcast receiving and distribution system that will convert different frequencies and different polarized signals in order to permit the signals to be transmitted via a single ~~coaxial~~ cable.

[0011] It is another object of the present invention to provide for a satellite broadcast receiving and distribution system that will provide service to mid/high-rise office buildings, condominiums, schools, hospitals and the like via a single cable ~~satellite~~.

[0012] A ~~final~~ further object of the present invention, to be specifically enumerated herein, is to provide a satellite broadcast receiving and distribution system in accordance with the ~~proceeding~~ preceding objects and which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a system that would be economically feasible, long lasting and relatively trouble free in operation.

[0013] ~~Although there have been many inventions related to satellite broadcast receiving and distribution systems, none of the inventions have become sufficiently compact, low cost, reliable enough to become commonly used, and all still require the use of two cables in order to transmit the full band width signals of the different polarized frequencies simultaneously.~~ The present invention meets the requirements of the simplified design, compact size, low initial cost, low operating cost, ease of installation and maintainability, and minimal amount of training to successfully employ the invention.

[0014] An example embodiment of the present invention provides a satellite broadcasting system comprising a satellite dish coupled to a low-noise block converter. The low-noise block converter is coupled to a first means of converting vertical polarization signals and horizontal polarization signals (or left-hand circular polarization signals and right-hand circular polarization signals) from a satellite, and transmitting both polarity signals simultaneously via a single coaxial cable. This

enables two different frequencies and polarities to be transmitted simultaneously via a single coaxial cable.

[0015] The example embodiment further includes a second means coupled to the first means. The second means converts the vertical polarization signals and the horizontal polarization signals (or said left-hand circular polarization signals and the right-hand circular polarization signals) from the first means to frequencies for a source. A satellite receiver is coupled to the second means. The source is coupled to the satellite receiver.

[0016] The example embodiment further includes a power source coupled to the first means. The power source powers the first means.

[0017] In accordance with a further aspect of the preferred embodiment, the second means provides for the signals to be converted separately and independently to the satellite receiver by a transmitting means. The present invention in one of its aspects further provides a transmitting means for the signals to be selectively converted to the satellite receiver via a first cable coupled to the second means.

[0018] In accordance with a further aspect of the invention, the transmitting means further includes a polarity switch for permitting the signals to be selectively converted to the satellite receiver.

[0019] In accordance with a still further aspect of the invention, the first means includes a first converting system for converting the signals of a first direction to a desired first frequency and polarization, and a second converting system for converting the signals of a second direction to a desired second frequency and polarization. The first converting system may include a first down converter which is coupled to an amplifier. The second converting system may include an up converter coupled to a second down converter. A joining means may be coupled to the amplifier and the second down converter. The joining means may include a four way splitter. A phase lock loop transmitter may be coupled to the four way splitter.

[0020] In accordance with a further aspect of the invention, the second means includes a splitting means to split and divide the signals from the single coaxial cable to enable the signals to be transmitted to a first converting system and a second converting

system. The first converting system may convert the signals of a first direction to a desired first frequency and polarization for the satellite receiver. The second converting system may convert the signals of a second direction to a desired second frequency and polarization for the satellite receiver. The first converting system may include a first up converter which is coupled to a splitting means and a first down converter which is coupled to a first down converter. The first down converter may be coupled to the satellite receiver via a first line. The second converting system may include a second up converter coupled to the splitting means. The second up converter may be coupled to the satellite receiver via a second line. The splitting means may include a four way splitter. A phase lock loop may be coupled to the four way splitter.

[0021] In accordance with a further aspect of the invention, a first converting system includes a first up converter which is coupled to a splitting means and to a first down converter. The first down converter may be coupled to a joining means. The second converting system may include a second up converter coupled to the splitting means and to the joining means. A polarity switch may be coupled to the first down converter and the second up converter. The polarity switch may be coupled to a first cable which is coupled to the satellite receiver.

[0022] In accordance with a further aspect of the invention, the splitting means and the joining means each include a four way splitter, and a phase lock loop receiver is coupled to the spitting means. The splitting means may split and divide signals from the single coaxial cable to enable said signal to be transmitted to a third converting system for converting the signals of said first direction and a fourth converting system for converting the signals of the second direction.

[0023] The third converting system includes a second up converter which is coupled to the splitting means and to a third down converter. The third down converter may be coupled to the satellite receiver via a first conduit. The fourth converting system may include a third up converter coupled to the splitting means. The third up converter is also coupled to the satellite receiver via a second conduit.

[0024] The foregoing has outlined some of the more pertinent objects of the invention. These objects should be construed to be merely illustrative of some of

the more prominent features and application of the intended invention. Many other beneficial results can be obtained by applying the disclosed invention in a different manner or modifying the invention within the scope of the disclosure. Accordingly, a fuller understanding of the invention may be had by referring to the detailed description of the preferred embodiments, in addition to the scope of the invention defined by the claims taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] FIGURE 1 illustrates a block diagram representing the satellite broadcast signal receiving and distribution system according to a preferred non-limiting exemplary embodiment of the present invention. ~~Similar reference numerals refer to similar parts throughout the several views of the drawings.~~

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0026] As illustrated in ~~fig.~~Figure 1, the satellite system of a non-limiting preferred example embodiment of the present invention includes a receiving satellite antenna 1 that is connected to a head-in equipment frequency processor 44. It is at this head-in equipment frequency processor 44 where the signals (Vertical-polarized signals and Horizontal-polarized signals; or left-hand circular and right-hand circular polarization signals) are received simultaneously and then transmitted via a single coaxial cable 13 to the head-out receiver processor 45 or 46. From the receiver processor 45 or 46, the signals are transported to a satellite receiver 27 or 41 and to a source 29 or 43 (this figure illustrates a television as its source).

[0027] As illustrated, the receiving satellite antenna 1 is connected to a low-noise block converter (LNB) 2 for amplifying and converting the respective polarized signals (Vertical-polarized signals and Horizontal-polarized signals; or left-hand circular and right-hand circular polarization signals). This LNB converter 2 is coupled to the head-in equipment frequency processor 44.

Accordingly, after signals are received, they pass the low-noise block converter 2, to provide for the signals to enter the head-in equipment frequency processor 44 (illustrated in dashed lines) via ~~conduits~~ lines 3 and 4.

[0028] The head-in equipment frequency processor 44 provides for the signals via lines 3 and 4 to be converted to the frequencies which the ~~present day~~line amplifiers can transport via converters 5 and 7, respectively. From the ~~conduits~~lines 3 and 4, the signals or transponders are transmitted to a first converter or down converter 5 and a second converter or up converter 7, ~~respectfully~~respectively. These frequency converters convert the entered frequencies to frequencies which the ~~present day~~ line amplifiers can transport.

[0029] The utilization of two converters permits for the acceptance of two signals or polarized transponders that are of a different frequency.

[0030] In the down converter 5, the transponders are converted down to a specified frequency. This specified frequency is the frequency that is required for the ~~present day~~ line amplifiers to transport. The newly converted frequencies are amplified through the amplifying means 6. At means 6, the converted frequencies are amplified so as not to create second harmonics. These signals are then transferred to a four way splitter 10.

[0031] In the up converter 7, the transponders are converted up to a specified frequency. The converted frequencies then are converted down via down converter 8. This process of converting up and then down provides for frequencies to be converted without difficulties and avoiding any forbidden conversion area.

[0032] The converted signals are transferred to the four way splitter 10 in order to combine the frequency output of the ~~amplifier~~ amplified signal of amplifier 6 and the frequency output from converter 8. To synchronize~~d~~ the system, the frequencies from the phase lock loop (PLL) ~~transmitter~~ 9 are transmitted to the splitter 10.

[0033] From splitter 10, the signals are passed through an A.C. power separator 11. Block 12 ~~which~~ routes 60 Volts power to a D.C. power supply of 18 Volts.

[0034] This will permit for the dual ~~frequencies~~ polarization frequency blocks from the satellite dish 1 to be transmitted simultaneously via a single coaxial cable 13. Dependent upon the length of the cable, an optional amplifier 14 can be coupled thereto. Power from a power source 16 is inserted into the lines via a power inserter 15. The signals are amplified, as needed, with an additional amplifier(s) 17. It is noted that the amplifiers are optional and are dependent to the distance that the head-in frequency processor 44 is located from the head-out receiver processor 45 or 46. The power supply and power source ~~16~~ 12 energizes the head-in frequency processor 44.

[0035] From the single coaxial cable 13, the signals are adjusted via a tap 18 or 31 to permit for the appropriate power level (decibels) that is required for the head-out receiver processor 45 or 46.

[0036] The head-out frequency processor 45 ~~includes~~ can take the form of a plurality of embodiments. The design and configuration of the head-out frequency processor 45 is dependent on the source (e.g., TV 29) in combination with the satellite receiver 27.

[0037] The first embodiment for the head-out receiver processor is illustrated in ~~figure~~ FIGURE 1 and is represented by way of dashed lines 45. As seen in this head-out receiver processor 45, the simultaneously transmitted signals enter the processor 45 via ~~conduit~~ line 19. The ~~conduit~~ line 19 is coupled to a four (4) way splitter 20. A phase locked loop (PLL) receiver 21 is coupled to the splitter 20 to permit for the signals to be locked to the proper and desired frequencies. From the splitter, the first frequency is transmitted to a first converter 22 in order to permit signals or transponders to be converted up to a specified frequency. This up converted signal is then transmitted to the satellite receiver 27 by way of a ~~conduit~~ line 26.

[0038] The second frequencies are transmitted to a first or up converter 23 and then is transmitted to a second or down converter 24. This will permit for the signals to be converted to the desired frequency. The conversion of the signals from up to down provides the benefit of converting the frequencies without any

mishap or error. This method of conversion will avoid the forbidden conversion area. This second or down converter 24 is coupled to the satellite receiver 27 via ~~conduit~~ line 25. The signals received from the satellite 1 can then be transmitted to the TV (source) 29 by line 28.

[0039] As illustrated, this head-out receiver processor 45 is the reverse process of the head-in processor 44. This is to provide for the signals to reconvert to ~~its~~ their original frequencies so as to provide for the satellite receiver and TV (source) to accept the signals. The single cable 13 accepts the signals at frequencies different than that of the TV (source) 29 and satellite receiver 27. Accordingly the head-out receiver processor 45 must reconvert the signals to the frequencies that are utilized by the TV (source) 29 and satellite receiver 27. This design and configuration of the head-out receiver processor is dependent on the design and configuration of the satellite receiver 27.

[0040] An alteration of the satellite receiver 27 requires an alteration in the head-out receiver processor. This alteration is illustrated in ~~figure~~ FIGURE 1 and is shown in outline and designated as reference 46. In this design and configuration, the satellite receiver 41 utilizes only one wire 40 and accepts only one type of signals~~,~~ at a time, such as left-hand circular polarized signals or right-hand circular polarized signals.

[0041] As seen, the frequencies are tapped via 31. The tap 31 is coupled to the head-out receiver processor 46 via line 32 which is connected to a four (4) way splitter 33. To provide for the signals to be locked in proper frequencies, the four way splitter 33 is coupled to a phase locked loop (PLL) receiver 34.

[0042] From the splitter 33, the first signal is transmitted to a first or up converter 36, and then is transmitted to a second or down converter 37. The conversion of the signals from up to down provides the benefit of converting the frequencies without any mishap or error. This method of conversion will avoid the forbidden conversion area.

[0043] The signals~~,~~ from the splitter 33 are transmitted to an up converter 35 which will inherently convert the signals.

[0044] A polarity switch 39 is connected to converters 35, 36, 37 in order to permit for the head-out receiver processor to be coupled to the satellite receiver 41 via a single cable 40 and a joining means 38 which is a four (4) way splitter. The satellite receiver 41 is connected by way of line 42 to a TV (source) 43.

[0045] It is noted that ~~figure~~ FIGURE 1 illustrates the use of two head-out receiver processors, but in actuality, only one head-out receiver processor ~~is~~ need be utilized with the head-in processor 44. The type and embodiment for the head-out receiver processor is dependent ~~to~~ on the combination of the satellite receiver and TV (source) that are utilized.

[0046] The satellite system of the present invention will permit for two signals of different frequency and derived from different polarities to travel simultaneously via a single coaxial cable. The use of this satellite system will provide for a satellite system that is versatile, economical, and compact. The usage of the single cable permits for a system that can accept satellite broadcasting in places that were previously rendered impossible. These places includes mid/high-rise office buildings, condominiums, hospitals, schools, etc. The unique design and configuration enables the signals to be transmitted via the existing wiring of the buildings. The only renovations that may need to be done is the upgrading of the existing amplifiers.

[0047] While the invention has been particularly shown and described with reference to an embodiment thereof, it will be understood by those skilled in the art that various changes in form and detail may be made without departing from the spirit and scope of the invention.

I claim:

1. A satellite broadcasting system comprising:

a satellite dish antenna receiving vertical and horizontal polarization signal blocks from at least one satellite~~coupled to a low-noise block converter~~; ~~and~~

~~said~~ a ~~low-noise~~ block frequency converter coupled to receive the received signal blocks, the block frequency converter ~~is coupled to a first means of~~ frequency-converting the vertical polarization ~~signals~~ and horizontal polarization signal~~s~~ blocks received ~~or left-hand circular polarization signals and right-hand circular polarization signals~~ from said satellite to different frequency blocks; and

an amplifier arrangement coupled to said block frequency converter, said amplifier arrangement amplifying said converted signal blocks and applying said signal blocks simultaneously to a single coaxial cable for enabling said two different ~~frequencies~~ blocks ~~and polarities~~ to be distributed simultaneously via said single coaxial cable.

2. A satellite broadcasting system as in claim 1 further comprising ~~a second means is coupled to the first means;~~

~~said second means converts said vertical polarization signals and said horizontal polarization signals or said left-hand circular polarization signals and said right-hand circular polarization signals from said first means to frequencies for a source;~~

a satellite receiver ~~is~~ coupled to the ~~second means~~cable.~~; and~~

~~said source is coupled to the satellite receiver.~~

3. A satellite broadcasting system as in claim 2 ~~wherein~~ further including a power source ~~is~~ coupled to said ~~first means and said power source powers said first means~~block frequency converter.

4. A satellite broadcasting system as in claim 2 wherein said ~~second means~~block frequency converter provides for said signals to be converted separately and independently ~~to~~ by said satellite receiver~~by a transmitting means~~.

5. A satellite broadcasting system as in claim 2 wherein said ~~second means provides for a transmitting means for~~block frequency converter allows said

signals to be selectively converted to said satellite receiver~~via a first cable coupled to said second means~~.

6. A satellite broadcasting system as in claim 5 ~~wherein said transmitting means further~~ further including ~~includes~~ a ~~polarity~~ switch for selecting between said blocks ~~permitting said signals~~ to be selectively converted ~~to~~ by said satellite receiver.

7. A satellite broadcasting system as in claim ~~2~~ 4 wherein said ~~first means~~block frequency converter includes a first converting ~~system~~ means for converting said signals of a first polarization direction to a desired first frequency block ~~and polarization~~ and a second converting ~~system~~ means for converting said signals of a second polarization direction to a desired second frequency block~~and polarization~~.

8. A satellite broadcasting system as in claim 7 wherein said first converting ~~system~~ means includes a first down converter which is coupled to an amplifier and said second converting ~~system~~ means includes an up converted coupled to a second down converter and a joining means is coupled to said amplifier and said second down convertinger~~er~~ means.

9. A satellite broadcasting system as in claim 8 wherein said joining means includes a four way splitter.

10. A satellite broadcasting system as in claim 9 wherein a phase lock loop ~~transmitter~~ is coupled to said four way splitter.

11. A satellite broadcasting system as in claim 4 ~~wherein said second means includes~~further including a ~~splitting means~~splitter to split and divide said signals from said single coaxial cable to enable said signals to be transmitted to a first converting ~~system~~ means for converting said signals of a first polarization direction to a desired first frequency ~~and polarization~~ for said satellite receiver and a second converting ~~system~~ means for converting said signals of a second polarization direction to a desired second frequency ~~and polarization~~ for said satellite receiver~~, and said first converting system and said second converting system provide for said transmitting means~~.

12. A satellite broadcasting system as in claim 11 wherein said first converting ~~system~~ means includes a first up converter which is coupled to said ~~splitting means~~splitter and ~~said~~ a first down converter is coupled to ~~a~~ said first ~~down~~ up converter, said first down converter ~~is~~ being coupled to said satellite receiver via a first ~~conduit~~ signal line, said second converting ~~system~~ means includinges a second up converter coupled to said ~~splitting means~~splitter, and said second up converter is coupled to said satellite receiver via a second conduit.

13. A satellite broadcasting system as in claim 12 wherein said ~~splitting means~~splitter includes a four way splitter.

14. A satellite broadcasting system as in claim 13 wherein a phase lock loop ~~receiver~~ is coupled said four way splitter.

15. A satellite broadcasting system as in claim 6 ~~wherein said second means includes a splitting means~~further including a splitter to split and divide said signals from said single coaxial cable to enable said signal to be transmitted to ~~a first converting system~~a first block converting means for converting said signals of a first polarization direction to a desired first frequency block ~~and polarization~~ for said satellite receiver and a second block converting ~~system~~ means for converting said signals of a second polarization direction to a desired second frequency block ~~and polarization~~ for said satellite receiver~~, and said first converting system and said second converting system provide for said transmitting means~~.

16. A satellite broadcasting system as in claim 15 wherein said first converting ~~system~~ means includes a first up converter which is coupled to said ~~splitting means~~splitter and said first up converter is coupled to a first down converter, said first down converter is coupled to a joining means, said second converting ~~system~~ means includes a second up converter coupled to said ~~splitting means~~splitter, and said second up converter is coupled to said joining means, a ~~polarity~~ switch is coupled to said first down converter and said second up converter, and said ~~polarity~~ switch is coupled to ~~said first cable which is coupled to~~ said satellite receiver.

17. A satellite broadcasting system as in claim 16 wherein said ~~splitting means~~splitter and said joining means each include a four way splitter, and a phase lock loop ~~receiver~~ is coupled to said ~~spitting means~~splitter.

18. A satellite broadcasting system as in claim 8 ~~wherein said second means includes~~further including a ~~splitting means~~splitter to split and divide said signals from said single coaxial cable to enable said signal to be transmitted to a third converting ~~system~~ means for converting said signals of said first polarization direction and a fourth converting ~~system~~ means for converting said signals of said second polarization direction.

19. A satellite broadcasting system as in claim 18 wherein said third converting ~~system~~ means includes a second up converter which is coupled to said ~~splitting means~~splitter and said second up converter is coupled to a third down converter, said third down converter is coupled to said satellite receiver via a first ~~conduit~~line, said fourth converting system includes a third up converter coupled to said ~~splitting means~~splitter, and said third up converter is coupled to said satellite receiver via a second ~~conduit~~line.

20. A satellite broadcasting system as in claim 8 wherein said ~~second means~~frequency block converter includes a ~~splitting means~~splitter to split and divide said signals from said single coaxial to enable said signals to be transmitted to a third converting ~~system~~ means for converting said signals of said first direction to a desired first frequency ~~and polarization~~ block for said satellite receiver and a fourth converting ~~system~~ means for converting said signals of said second polarization direction to a desired second frequency ~~and polarization~~block for said satellite receiver.

21. A satellite broadcasting system as in claim 20 wherein said third converting ~~system~~ means includes a second up converter which is coupled to said ~~splitting means~~splitter and said second up converter is coupled to a third down converter, said third down converter is coupled to a second joining means, said fourth converting ~~system~~ means includes a third up converter coupled to said ~~splitting means~~splitter, and said third up converter is coupled to said second joining

means, a ~~polarity~~ switch is coupled to said third down converter and said third up converter, and said ~~polarity~~ switch is further coupled to a ~~conduit~~ line which is coupled to said satellite receiver, and said second joining means is coupled to said ~~conduit~~line.

22. A satellite signal distribution system that distributes at least one vertical polarization type block of received satellite signals and at least one horizontal polarization type block of received satellite signals over the same distribution cable to remotely located satellite receivers, said distribution system comprising:

a block converter connected to frequency-convert to a different frequency block, at least one of (a) said vertical polarization type block of received satellite signals and (b) said horizontal polarization type block of received satellite signals, said block converter having an output;

at least one amplifier arrangement coupled to the block converter output, said amplifier arrangement amplifying said frequency-converted block(s); and

a coupling arrangement that couples said vertical polarization type block of received satellite signals and said horizontal polarization type block of received satellite signals as block frequency converted and amplified by said block converter and said amplifier, such that said vertical polarization type block of satellite signals and said horizontal polarization type block of satellite signals are carried simultaneously by said distribution cable to said plural remotely located satellite receivers.

23. The system of claim 22 wherein each of said satellite receivers are coupled to said distribution cable, said satellite receivers, in use, each independently selecting a desired satellite signal within either said vertical polarization type block of satellite signals and said horizontal polarization type block of satellite signals carried by said distribution cable.

24. The system of claim 22 wherein said block converter frequency-converts both said vertical polarization type block of received satellite signals and said horizontal polarization type block of received satellite signals.

25. The system of claim 22 wherein said block converter comprises a down converter.

26. The system of claim 22 wherein said block converter includes an up converter connected to a down converter.

27. The system of claim 22 wherein said block converter includes a phase locked loop.

28. The system of claim 22 further including a satellite antenna.

29. The system of claim 28 further including a low noise block converter connected between said satellite antenna and said block converter.

30. The system of claim 22 further including an AC power separator.

31. The system of claim 22 further including a splitter.

32. The system of claim 22 wherein said distribution cable comprises a coaxial cable.

33. The system of claim 22 wherein said amplifier arrangement amplifies so as not to create second harmonics.

34. The system of claim 22 wherein said block converter converts transponders of said received satellite signals up to a specified frequency.

35. The system of claim 34 wherein said block converter converts signals to a higher frequency block and then to a lower frequency block to avoid any hidden or forbidden conversion areas.

ABSTRACT

~~The present invention provides for a~~A satellite signal distribution system ~~that will permit for the transmission of signals~~ distributes signal blocks of two different received frequencies and polarities ~~to be transmitted~~ simultaneously over the same cable.~~, also the system will accommodate two different polarity commands from two or more different sources at the same time.~~ The satellite system ~~of the present invention~~ includes a satellite dish or antenna that receives signals. These received signals are ~~then~~ transmitted to a block frequency converter that ~~. A head-in frequency processor is coupled to the converter. This head-in frequency processor~~ enables the different ~~frequencies~~ frequency ~~and polarities~~ polarity blocks to be ~~transmitted~~ distributed simultaneously via a single ~~coaxial~~ cable. The~~is~~ ~~single coaxial~~ cable is coupled to a head-out receiver processor which ~~is connected~~distributes the signals to ~~a~~ satellite receivers. ~~This~~ The receivers ~~is~~ are connected to ~~a~~ TVs or other sources. This unique design and configuration provides for ~~the~~ a system that will permit ~~for satellite broadcasting to occur in locations that are not in the line-of-sight path to the satellites. Accordingly, the satellite system of the present invention will permit~~ satellite broadcast~~ing~~ signal distribution ~~in~~ to high-rise~~s~~ buildings, hospitals, condominiums, schools, and the like.